

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-30 (canceled)

31. (New) A magnetic media having a timing based servo track prepared by a process comprising the steps of:

providing a magnetic recording head having a timing based gap pattern, the magnetic recording head comprising:

a substrate;

a magnetically permeable thin film deposited onto the substrate;

a gap pattern forming a timing based servo track, the gap pattern being milled through the magnetically permeable thin film using a focused ion beam, wherein the focused ion beam is oriented in a direction that is parallel with a resulting gap depth through the magnetically permeable thin film; and

a coil coupled to the substrate, wherein the coil controllably causes magnetic flux to flow through the substrate and the thin film;

moving a magnetic media, which does not have a timing based servo track recorded thereon, across an upper surface of the magnetic recording head in a transducing direction;

causing electrical current to flow through the coil; and

causing magnetic transitions to occur on a surface of the magnetic media, a magnetic pattern being formed in substantially the same pattern as the gap pattern of the magnetic recording head which forms the timing based servo track on the magnetic media.

32. (New) The magnetic media of claim 31, wherein the magnetic media is a magnetic tape.

33. (New) The magnetic media of claim 31, wherein the substrate of the recording head further comprises a pair of ferrite blocks bonded to a ceramic member wherein an upper surface of the bonded blocks and ceramic member is polished.
34. (New) The magnetic media of claim 33, wherein the upper surface of the recording head has a curvature, the curvature facilitating smooth contact of the magnetic media with the upper surface of the recording head.
35. (New) The magnetic media of claim 31, wherein the thin film of the recording head includes a material sputtered onto the substrate to produce the thin film.
36. (New) The magnetic media of claim 35, wherein the sputtered material of the recording head is chosen from a family of iron nitride alloys.
37. (New) The magnetic media of claim 35, wherein the sputtered material of the recording head is FeXN.
38. (New) The magnetic media of claim 35, wherein the sputtered material of the recording head is FeAlN.
39. (New) The magnetic media of claim 35, wherein the sputtered material of the recording head is FeTaN.
40. (New) The magnetic media of claim 35, wherein the sputtered material of the recording head is sputtered to form a thin film having a thickness between 1 to 5 μm .
41. (New) The magnetic media of claim 31, wherein the gap pattern of the recording head is defined by a visual indication of the pattern on the thin film.
42. (New) The magnetic media of claim 41, wherein the visual indication of the recording head is provided by an applied layer of photoresist over at least a portion of the thin film,

wherein the photoresist is masked and a portion of the photoresist is removed using a chemical process.

44. (New) The magnetic media of claim 31, wherein the gap pattern of the recording head is defined by entering numerical coordinates of the gap pattern into a control system of the focused ion beam, wherein the visually defined pattern provides a reference point from which numerical coordinates are based.

45. (New) The magnetic media of claim 31, wherein the focused ion beam is substantially perpendicular to an upper surface of the thin film of the recording head during milling.

46. (New) The magnetic media of claim 44, wherein the gap of the recording head has substantially vertical side walls.

47. (New) The magnetic media of claim 31, wherein the gap of the recording head has substantially vertical side walls.

48. (New) The magnetic media of claim 31, wherein at least one air bleed slot is provided on the recording head for aiding in maintaining contact of the magnetic media with the upper surface of the recording head.

49. (New) The magnetic media of claim 31, further comprising securing the recording head to a head mount.

50. (New) A magnetic media comprising:
a timing based servo track, the timing based servo track comprising at least one magnetic transition on a surface of the magnetic media, the magnetic transition being formed in substantially the same pattern as a timing based gap pattern on a magnetic recording head; and

wherein the timing based servo track is written by the magnetic recording head, the magnetic recording head having the timing based gap pattern, the magnetic recording head comprising:

a substrate;

a magnetically permeable thin film deposited onto the substrate; and

a gap pattern milled through the magnetically permeable thin film using a focused ion beam, wherein the focused ion beam is oriented in a direction that is parallel with a resulting gap depth through the magnetically permeable thin film.

51. (New) The magnetic media of claim 50, wherein the magnetic media is a magnetic tape.

52. (New) The magnetic media of claim 50, wherein the timing based servo track comprises at least one diamond shaped gap.

53. (New) The magnetic media of claim 50, wherein the timing based servo track comprises at least one augmented diamond shaped gap.

54. (New) A process of making a magnetic media having a timing based servo track comprising:

providing a magnetic recording head having a timing based gap pattern, the magnetic recording head comprising:

a substrate;

a magnetically permeable thin film deposited onto the substrate;

a gap pattern forming a timing based servo track, the gap pattern being milled through the magnetically permeable thin film using a focused ion beam, wherein the focused ion beam is oriented in a direction that is parallel with a resulting gap depth through the magnetically permeable thin film; and
a coil coupled to the substrate, wherein the coil controllably causes magnetic flux to flow through the substrate and the thin film;

moving a magnetic media, which does not have a timing based servo track recorded thereon, across an upper surface of the magnetic recording head in a transducing direction;

causing electrical current to flow through the coil; and

causing magnetic transitions to occur on a surface of the magnetic media, a magnetic pattern being formed in substantially the same pattern as the gap pattern of the magnetic recording head which forms the timing based servo track on the magnetic media.

55. (New) The process of claim 54, wherein the magnetic media is magnetic tape.

56. (New) The process of claim 54, further comprising facilitating contact of the magnetic media with the upper surface of the recording head by providing the upper surface of the recording head with a curvature.

57. (New) The process of claim 53, further comprising maintaining contact of the magnetic media with the upper surface of the recording head by providing at least one air bleed slot on the recording head.

58. (New) The process of claim 53, further comprising securing the recording head to a head mount.

59. (New) The process of claim 53, wherein the timing based servo track comprises at least one diamond shaped gap.

60. (New) The process of claim 53, wherein the timing based servo track comprises at least one augmented diamond shaped gap.

61. (New) The process of claim 53, wherein the gap pattern of the recording head is defined by a visual indication of the pattern on the thin film.

62. (New) The process of claim 60, wherein the visual indication of the recording head is provided by an applied layer of photoresist over at least a portion of the thin film, wherein the photoresist is masked and a portion of the photoresist is removed using a chemical process.

63. (New) The process of claim 53, wherein the substrate of the recording head further comprises a pair of ferrite blocks bonded to a ceramic member wherein an upper surface of the bonded blocks and ceramic member is polished.

64. (New) The process of claim 53, wherein the thin film of the recording head includes a material sputtered onto the substrate to produce the thin film.

65. (New) The process of claim 63, wherein the sputtered material of the recording head is chosen from a family of iron nitride alloys.

66. (New) The process of claim 63, wherein the sputtered material of the recording head is FeXN.

67. (New) The process of claim 63, wherein the sputtered material of the recording head is FeAlN.

68. (New) The process of claim 63, wherein the sputtered material of the recording head is FeTaN.

69. (New) The process of claim 63, wherein the sputtered material of the recording head is sputtered to form a thin film having a thickness between 1 to 5 μm .

70. (New) The process of claim 53, wherein the gap pattern of the recording head is defined by entering the numerical coordinates of the gap pattern into a control system of the focused ion beam, wherein the visually defined pattern provides a reference point from which numerical coordinates are based.

71. (New) The process of claim 53, wherein the focused ion beam is substantially perpendicular to an upper surface of the thin film of the recording head during milling.

72. (New) The process of claim 70, wherein the gap of the recording head has substantially vertical side walls.

73. (New) The process of claim 53, wherein the gap of the recording head has substantially vertical side walls.